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Extra copies of this journal may be obtained at 50c each to members and $1 each to non-members.

Winnipeg Chapter Is Organized

Winnipeg members of the Canadian Society of Cost Accountants have organized a local Chapter, and a programme for the coming season is being arranged. A preliminary meeting was held in May, and on June 28th a larger meeting, to which others were invited, was held at the St. Charles Hotel. There was an attendance of thirty-six at this meeting, of whom about half were Chartered and the rest were Industrial Accountants. After discussion it was moved and seconded, and carried unanimously, that a Chapter be formed in Winnipeg. The following Executive was elected:—

Chairman, F. C. Gilbert, C.A., Gilbert & Laird; Secretary, G. A. Phare, Royal Crown Soaps, Ltd.; W. J. Mundell, Ogilvie Flour Mills Company, Ltd.; H. J. Morden, C.A., Oscar Hudson & Company; W. J. Logan.

Others will be added to this Executive in due course. Mr. Gilbert was one of the original incorporators of this Society in 1920, and Mr. Phare was on the Executive of Toronto Chapter until his removal to Winnipeg last year. Other members have taken an active interest in the work of the Society.

The fourth Chapter of our Society, therefore, starts under the leadership of men who are familiar with cost accounting and with the wide problems of management which can be most successfully approached through a knowledge of costs. The co-operation of Chartered and other public accountants, with men engaged in actual charge of cost systems, has been found most helpful in the other Chapters of the Society, and gives Winnipeg Chapter the right start.

Winnipeg, while noted chiefly as a trading centre and transportation headquarters for the west, is the fourth city of Canada as regards manufacturing output. Latest statistics show the following: Montreal, $460,252,357; Toronto, $447,098,824; Hamilton, $122,305,950; Winnipeg, $79,614,-829. It is appropriate, therefore, that Winnipeg should take the lead in extending the work of our Society in the West.

Accuracy in Business

By E. H. MORROW

Head of the Department of Business Administration, University of Western Ontario.

(Before Hamilton Chapter, March 14th).

THE word "accuracy" is one that must in your work be the very foundation upon which your professional success is built. Hence, it would be highly improper and equally idiotic for me to come here and attempt to tell you anything about "accuracy" in its application to accounts and accounting.

So, let us talk this evening of anything but accounts. I can assure you that the accounting department has no monopoly on the need for accuracy when applied to business activities, though probably we will be prone to admit that it reaches further along the road to perfection than do most other departments.

When preparing for this evening I experienced a rather curious phenomenon in that I found that a negative approach to the subject of "accuracy in business" is perhaps the best. So, I shall show the crying need for improvement by citing instances where accuracy was conspicuously lacking.

Not very long ago a group of very successful businessmen formed a close joint stock company in order to buy out a small business owned and operated by a man who had been conspicuously successful and had made a great deal of money out of his business. It happened to be a business in a food line in which secret formulae played a very important part in the manufacture of the product. The articles of agreement provided that all formulae held by the owner should be transferred with the business. After the deal was consummated it transpired that the most vital of the formulae were the property, not of the owner of the business, but of the superintendent who had for years been in charge of the manufacturing. Consequently, the new owners have to nurse a none too easy superintendent until such time as, from the goodness of his heart, he decides to retire from active business in the hope that when he

does he will bequeath to the business the formulae upon which it is founded. And, I may add, that the gentleman is by no means insensible to his strategic position.

This, gentlemen, is a fair example of lack of accuracy in the facts which go to make up the promotion of a business venture. Some of you will say—"an extreme case." In this I beg to differ, because the commercial world is strewn with the wreckage of concerns, particularly small concerns, which failed in their initial stages to obtain the accurate information vital to forecasting the probable success or failure of a proposed undertaking.

We are all familiar with the type of individual who is loose and inaccurate in speech and who, because of this, has constantly to retrace his ground with volubility of explanation. It is a serious fault, usually growing out of inaccuracy of thought, and frequently it earns a really undeserved reputation for evasiveness.

But how about the loose letter-writers! There are more of these than there are of the other kind and I know of no feature of business which calls for greater improvement than that of correspondence.

A few months ago I was engaged in certain negotiations with an important United States executive. Towards the close of our correspondence I received a letter which was entirely negatived by the careless inclusion of the words "at least." These two small words gave an evasive tone to a letter that circumstances demanded should be unequivocally clear and to the point. At the risk of giving serious offense I was forced to write a rather blunt question which would force a clean-cut and definite answer.

One cannot be too careful in the use of small qualifying words which lead to ambiguity of meaning and possible misconstruction. Under the most favourable of circumstances, to write a clear, pointed letter at first writing, demands a mastery of the English language which, I am afraid, is vouchsafed to only a few, and those few are seldom numbered amongst the honour English students in our universities. To dictate such a letter to a stenographer, or to a dictaphone is an impossibility except for an extraordinarily clear-thinking genius, or for someone, such as a journalist, who is in constant practice. If I may offer a word of advice in this regard it is strongly to recommend that you never dictate an important letter which involves

points at issue. You are practically sure to obscure the issues if you do. Better far to write such a letter out and then not to send it until you have had opportunity to rewrite it two or three times with an appreciable lapse of time between each writing. To reach a decision rapidly may be a good thing, but to reach it too rapidly is bad, and afterwards to vitiate its force through sloppy composition is still worse. Accuracy of figures is but a short step ahead of accuracy in words.

You are, of course, all aware of the furore that has arisen in recent years for establishing business upon a budgetary system. You will also be aware of the fact that the term budget, as applied to the ordinary manufacturing concern, has wide application and includes materials, production schedules and employees as well as money. The scientific budget of to-day is nothing more than a very complete estimate of all the activities of a business and proceeds from the forecast of sales of which I will say more later. Traditionally, however, the budget revolves around monetary considerations only and I suppose that still the majority of budgets are purely financial in their point of view. As a result the budget more often than not becomes a struggle between the needs of department heads and the notorious close-fistedness of corporation treasurers. The budget, while a useful guide, becomes anything but accurate and fails lamentably from being the scientific tool of control that it can become.

There is in Canada to-day a very large corporation that has for years based its operation on a budgetary system which is a marvel of long time and short time estimating. The long time estimates are more concerned with future business conditions than with providing finances to meet the conditions. Consequently, they are compiled without bias and I believe are amazingly accurate. The short period budgets, however, are concerned with fairly immediate operations and the estimates of financial requirements play a big part. This is how it is done. The various department heads estimate the work ahead and calculate the expenditures necessary. But, as a result of experience, they pad their estimates deliberately so as to afford the treasurer opportunity to indulge in his favourite sport of cheese-paring. In fact, the estimates are anything but accurate and when the treasurer gets through with his flat

percentage cut they may be adjusted to the conditions or they may not, depending upon the ability of the department heads to gauge the mood of the treasurer. I wonder whether or not you recognize the situation, or are you all in the fortunate position where your treasurers make it safe for you to submit accurate estimates that are not questioned.

This procedure would be all right were all departments' estimates inflated to the same extent and were automatically reduced by the same percentage. Unfortunately the human element enters into the situation and the system bears unfairly on the department whose head is scientifically-minded and makes accurate forecasts in the first instance or whose personality is not strong enough to stand up vigorously for his own rights. I would say that, generally speaking, the two traits will not be found in the same man, because the hearty liar is usually the vociferous fighter. Unquestionably, it is an attitude that results in poorly balanced appropriations which handicap one department in its relation to others.

Accuracy in budgeting has not by any means arrived. Whether or not it is the duty of the cost accountant to fight for it I am not prepared to say. Perhaps it is more the duty of the statistician. But anyway you will all have opportunity to do your bit towards bringing the millenium.

Obviously, gentlemen, it would be futile for me to stand here and attempt to enumerate all the inaccuracies that are to be found in the conduct of the average business. The task would be never ending. Consider for one minute the inaccuracies which arise from poorly controlled production schedules, from the lack of sound costing, from the complete ignorance on the part of employers of what really constitutes a fair day's work for an employee. When we hear, for instance, of cases where proper standardization of shop conditions and tools coupled with a properly installed incentive wage raises individual production by hundreds per cent., the inaccuracies are perfectly obvious even if we wish to turn aside our heads.

Within a few miles of London is a plant which five years ago employed thirty-five hands under ordinary conditions. To-day, as a result of increasing the accuracy of their control methods they employ thirty-five hands and get 300 per cent. more output.

You probably all have had experience of that abomination—"a cost system" installed in a plant holus bolus by so-called experts. I have seen many such installations and I have yet to see one that in accuracy can compare with the built-up system that is the outcome of experience intelligently applied.

Surely such things are not surprising when we remember that in 1920 and 1921 General Motors wiped about 135 millions of dollars off their inventories. Eighty-four millions of this was a loss taken in 1920 as a result of poor guessing, possibly unavoidable, but in 1921, forty-eight millions of a loss was incurred by six factories who ignored advice and were allowed to run wild because of inaccuracy of control methods.

If I did not deal with specific cases all I could do with a subject like this would be to utter platitudinous generalities which mean nothing, so if I bore you with specific details, please bear with me, or stop me.

Let us, however, leave specific cases for a moment and consider the greatest phenomenon of business inaccuracy, the business cycle. Now the business cycle has been accounted for in various ways from sun spots to tides, but to-day it is generally acceded that the recurrent ups and downs in business are due to an accumulation of mal-adjustments in business itself. It is a complicated subject including expansion of credits, public psychology, over-speculation and a host of other things.

In every instance, these factors are gigantic inaccuracies due to the over-optimism of human beings. I wish, however, to confine myself to one phase merely—that is the actual physical volume of production during the depression and prosperity phases of the cycle.

First, I will make the general statement that even in a period of depression the actual volume of retail sales, except in the case of luxuries, is never curtailed.

Very careful estimates made in the United States show that in the years 1920 and 1921 the actual volume of goods sold at retail went up rather than down. What then really happened to give a false impression? Why is it that when goods appear to be scarce they are actually plentiful and vice versa? When a period of prosperity first appears with a tendency towards rising prices, the public buys freely

and this stimulates the retailers to rush late orders to their suppliers. Manufacturers naturally are not in a position to care for these all at once, and their forced delays frighten the retailers who keep re-ordering in the hope that some of their orders will come through. In turn the manufacturers order freely in the field of raw supplies and push the tendency for hysterical ordering right back into the primary industries. Primary industries are incapable of rapid expansion because their output depends so largely upon long time factors such as the sowing and harvesting of the cotton crop or the rubber crop or upon the raising of sheep or cattle. The natural tendency is for raw supplies to become scarce in relation to outstanding orders and sharp price movements occur upwards. In turn these price advances stimulate the frenzy for all branches of trade to contract before further price jumps. The whole thing is cumulative and when we add to the psychology of the situation the slowing up of deliveries because of railroad congestion, we can readily understand how it is possible, for an apparent scarcity of consumer goods exists at a time when the actual physical volume of output in the primary and secondary industries is actually greater than the country can absorb. Eventually some twist in public psychology pricks the bubble and the facts of the situation are felt in terrific inventory losses.

Now this is a condition which is part and parcel of the business cycle which is, as I said, the culmination of gigantic inaccuracies. As civilization progresses and as people and communities become more interdependent the machinery of business becomes more delicate and subject to dislocation.

Can anything be done to correct these inaccuracies and to smooth them out so that crises will depend only upon great catastrophes which occur from time to time and which are beyond human control?

Yes! Much can be done and much is being done as a clearer understanding is achieved of the underlying causes of the cycles. Some of these measures are national in scope such as the credit control operations of the Federal Reserve Board in the United States. Other, and to my mind the most influential measures, are steps taken by individual firms to iron out their own ups and downs by correcting their own inaccuracies.

Unquestionably, the great factor in preventing hard times is to keep factories operating steadily and without shut downs and layoffs. Any factory which can control its schedules so that it operates at a constant normal rate of hours throughout the year, benefits the community by providing steady work which maintains purchasing power and benefits itself by incurring a minimum of overhead. And all this depends in the last analysis upon the accuracy with which a company can forecast its sales.

Now a forecast of sales, gentlemen, is a most difficult and scientific operation, the intricacies of which are beyond me, and which I shall not attempt to explain. But what I wish to do, gentlemen, is to attack most vigorously that point of view which says it cannot be done and which prefers to rest inert in its inaccuracies asserting that people like myself are extravagant theorists. I am not going to argue. Instead I shall give you illustrations of sales forecasting, a few cases which have come to my notice, a few out of many, each of which is doing its tiny bit towards correcting that gigantic inaccuracy, the business cycle.

The Proctor and Gamble Company of Cincinnati, after over twenty years of striving, have managed to stabilize their production to a point where they contract with their workers for a guaranteed employment year of forty-eight weeks' work, and I believe two weeks' vacation with pay. The company reserves two weeks out of fifty-two for the purpose of reducing staff to meet business conditions. This labour contract is largely the outcome of a scientific forecast of sales.

The Hood Rubber Company of Waterdown, Mass., many years ago had reached a point where they forecast sales eighteen months in advance, and based their production schedules upon that forecast. They allowed for an error of five per cent., but I do not believe they ever came within shouting distance of such an error.

The Dennison Manufacturing Company forecasts ahead for twelve months in a business that is difficult to operate and extremely subject to general conditions. Yet I am correct, I think, in saying that they depend upon their forecasts to the extent that they can always take steps to meet falling business and never expect seriously to shut down the plant or to run into a lay-off period.

Finally, the Walworth Company which manufactures over twenty-two thousand separate items in the steam fit-

ting industry have for years based their factory schedules, their purchase commitments and all their budgets upon a twelve months" forecast covering sales of many millions of dollars in volume. It has been asserted by responsible officials that the error has never exceeded one-half of one per cent.

In conclusion, I shall repeat that gem of Scottish wisdom: "Mony a mickle maks a muckle." Anything that you or I can do to eliminate one tiny inaccuracy from the operation of the business with which we are identified is one more step towards making our world a better and happier place for others to live in.

NEW BOOKS

Cost Accounting Procedure. By Wm. B. Castenholz, M.A., C.P.A., 327 pages and index, including 58 charts and forms by E. C. Rayson, A.B., C.P.A. Published by LaSalle Extension University, Chicago

The author of this book is Director of the Department of Higher Accountancy in LaSalle Extension University, a member of the American Institute of Accountants, member of the National Association of Cost Accountants, and head of the firm of William Castenholz & Company, Certified Public Accountants.

The book deals with methods of keeping cost accounts. It accordingly covers the relation of the cost accounts to the actual administration of a business—a subject which is of vital importance. The first two charts illustrate the layout of a manufacturing plant, and the flow of costs through such a plant, and from this broad basis the author builds up in detail, methods for ascertaining and recording costs. He concludes with a chapter on installing a cost system, in the course of which he recommends that instead of starting with the raw material inventory, this problem be approached by an analysis of sales in order to determine the classes of product for which costs must be determined.

Cost Accounting Procedure is so thorough and so practical that it can be put down as one of a few books which should be in the working library of every cost accountant.

Application of Factory Overhead in the Steel Industry

By FRED. I. GREENFIELD

General Assistant, The Steel Company of Canada, Ltd., Montreal.

(Before Montreal Chapter, February 24th).

IN preparing a paper on the Application of Factory Overhead in the Steel Industry, it was necessary to decide the point at which to start the paper for the reason that there are two distinct steps in the distribution of factory overhead.

The first is the distribution of the overhead expense accounts, such as general works expense, power, water, light, general machine shop expense, yard switching expense, etc., to the producing departments and to the various overhead expense accounts. This is what is called the general distribution and is made monthly on varying bases which are no doubt familiar to you all. But I might mention a few, such as general works expense, which is a fairly constant expense month by month and is set over a period of normality on the basis of direct and other producing labor. Power is distributed on the number of hours a department operates each month, multiplied by the normal horse power of the department. The horse power actually used would not be a fair basis owing to the standby cost of steam power or the peak load cost of electric power. The general machine shop is distributed on the percentage of the direct labor expended by the general machine shop on account of each department or expense account. A shut down expense is provided, to take care of periods when a department is closed or running sub-normal for an extended period.

It is not my intention, however, to deal with the general distribution, but that of the distribution of the overhead to products within a department. After considering putting this in the form of a paper, I decided that by shortening the paper and using actual examples (copies of which you have before you) we could arrive at a better under-

standing of the method of the application of the overhead to factory costs.

In a steel business which manufactures products for sale ranging from pig iron to the ordinary office pin, it can easily be understood that a job cost system is not practical —some departments having a wide range of products and a number of processes, and others repeating the same operations day after day; also in some departments the range of sizes and classes of products are very numerous, such as the bolt and nut department, where some 500 sizes in all of the various products are produced. The cost, therefore, of recording job costs would be prohibitive.

At two works the operations permit of the job cost system, but these works manufacture special forgings to order. I mention this to show that it is necessary to consider the operations and products and set the basis for the distribution of the overhead on whatever method or combination of methods will most closely reflect the cost of the products.

I have mentioned these matters in order to have it understood why the system, as will be outlined in this paper, has been adopted for obtaining the cost of a specific size of any product.

The overhead is set up each year for the following year's special costs, providing the previous year has been a fair normal year.

If the previous year has been sub-normal or abnormal, an extended period is used to obtain normality, it is revised at any time during the year that changes in conditions in regard to labor, fuel supplies, etc., justify a revision.

The basis for setting up the overhead varies according to the class of overhead expense, as no universal method would result in reflecting the cost of each expense on the specific product and size being costed as closely as that of setting a basis for each expense.

If you will now refer to the exhibits, I will endeavor to explain how each is worked into the cost of a specific product and size.

The special cost I have chosen to illustrate the application of the overhead is one for the pressed spikes, as this is a complete process in one operation from the steel bar to the finished spike.

EXHIBIT A is the monthly cost sheet of a Spike Department. This cost sheet shows the complete cost of materials and operating expenses of the department for one month. These costs are used for accounting purposes and are closed into the general accounts each month. The costs of the products as shown at the bottom are used for the perpetual inventory values and also to ascertain the gain or loss on the month's sales.

EXHIBIT B—This is a form used for compiling the items that make up the monthly cost sheet and for distributing these items to the respective products produced in the department during the month, finally resulting in the figures shown under the caption "This month cost per unit of Products."

A new form for the monthly cost sheets combining A and B is under consideration and will likely be adopted.

EXHIBIT C is a memoranda of the basis for the distribution of each expense item in the overhead, and also shows in a separate column how these expenses may be more closely distributed to products if the amount involved in each is sufficient to justify the additional labor and expense of working out the cost by sub-divisions on varying bases rather than the expense as a whole, for example—general works expense is shown as distributed on the cost percentage basis of direct and other producing labor, but can be made more sympathetic by the distribution of the sub-accounts in separate groupings, each group on its own basis, some on labor, some on area, and some on value.

EXHIBIT D illustrates the setting up of the overhead expenses for special cost use. The month of July alone has been used in order to co-ordinate it with exhibit A. For general use, however, a normal period, as heretofore mentioned, would be used. This exhibit is self-explanatory when combined with exhibits A and B.

EXHIBIT E is a specimen copy of a special cost of spikes showing two products of widely varying sizes and the method used for working the distribution to each of its fair proportion of overhead expenses.

The only item that appears to call for further explanation is the ratio basis for shipping expense. This expense, you will notice, is not included in the monthly cost as the monthly cost determines the values of the inventory, and

as goods in inventory have incurred no shipping expense, it is not included.

The shipping ratios set for the four products in the spike department are shown in Exhibit C—the ratios are set according to the expense incurred in laying out orders, handling and clerical work. One product is ordered in small quantities—the standard package being 25 pounds—another product is ordered in large quantities—the standard package being 200 pounds; also some products are in boxes, others in kegs, and then again in bundles, the cost of handling therefore varies according to the kind of package. The products ordered in small lot quantities cost more per ton of shipping expense than large orders. All these factors have been taken into consideration in setting the ratios representing the relative costs of handling the orders and shipping.

An average cost of shipping expense would be too low on some products and too high on others.

The sales tonnage of each product for the year is worked out at the ratio figures, and the cost per ratio ton of shipping expense obtained.

Ratios are used to a considerable extent in die and tool and operating expense accounts, where the cost of keeping accurate records would be many times greater than the value of the data obtained, and on numerous tests ratios have proven that very satisfactory practical figures are obtained.

In the spike cost Exhibit E the overhead has been distributed on the percentage of direct and other producing labor, the net ton of production and the horse power hour basis making what would be called a combination of overhead method.

In making special costs a number of combinations are used, the basis of which are—

Percentage of Direct and Other Producing Labor.
Net Ton of Production.
Horse Power Hour
Machine Hour
Class Machine Hour
Operating hour or turn
Hole Ton (used in Wire Drawing)
Ratio net ton (used for Dies and Tools and some Expense Accounts).

The percentage of Direct and Other Producing Labor is used for the distribution of accounts where time is the principal factor.

Net Ton of Production is used for the distribution of General Labor, and such expenses as are common to all products in the department on a weight basis.

Horse Power Hours, of course, refers to power or, in some cases, to power and light.

The Class Machine Hour is used in a department where the machines are numerous and of the same type but considerably different in size, such as Wire Nail Machines.

Operating Hour or Turn is used where a standard crew and equipment is used, and where the production varies considerably per hour or per turn depending on the size or quality of the product.

Whole Ton is a basis which is used in Heavy Wire Drawing for the distribution of a number of accounts where time or wear is the factor, such as Supervision and Repairs.

Ratio Net Ton is used in varies Die and Tool and Expense Accounts, as explained previously.

The system of distribution, as outlined, does not exactly conform to strict accounting principles and is not intended to, as the object is to obtain practical forecasts of what the cost will be of articles or sizes not previously manufactured and also to obtain the cost of specific sizes of products already manufactured, without incurring the heavy cost and extensive system of records that would be necessary to follow each article and size through the numerous operations and tie the results up each month with the departmental Cost Sheet.

The success of the methods, as outlined, depends entirely on using the basis of distribution most adaptable to each expense, thus resulting in what has previously been referred to as a combination method of distribution of Factory Overhead.

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT A

COST OF ALL PRODUCTS AT PRESSED SPIKE DEPARTTMENT DURING MONTH 192

ACC.	No.	ITEMS	WEIGHT	PRICE	AMOUNT	COST PER N.T.
LP	1 A	Steel Bars	930 38	2.52	2 344.56	
	2 A	Iron Bars	1004 99	2.23	2 241.13	
		GROSS MATERIALS USED	1935 37	2.3694	4 585.69	53.137
		Less Scrap Produced				
LC	3 B		154 62	7.60 NT	58.75	
	10 FF		11 33	6.00 NT	3.30	
		Less Total Scrap Produced	165 95		62.05	.719
		NET MATERIALS USED	1769 42		4 523.64	52.418
		Producing Labor				
		Supt., Foremen, Clerks			81.24	.943
		Direct Labor			345.94	4.008
		Other Producing Labor			366.04	4.241
		Total Producing Labor (enter in red ink)			793.22	9.192
		Labor and Material in Repairs			144.78	1.677
		Labor and Material in Maint.			44.04	.510
		Tools, Lubricants and Supplies			28.26	.327
	126	SHUTDOWN EXPENSE				
	1	General Works Expense			287.59	3.331
		Steam			35.02	.406
	30	Electric Light and Power			141.23	1.636
	32	Lights				
	40	Water			6.76	.078
		Crane Expense				
	60	Yard Switching				
	70	Laboratory Expense				
	80	Stable and Cartage Expense			15.26	.180
	90	Shop Expense			66.68	.772
	100	Engineering Expense				
LM	2	Dies and Tools (Railway)	646 00	.092	59.43	.688
		Dies and Tools (Railway)	755 80	.135	102.03	1.182
LE	5 A	Fuel, 47100	471 00	15.34 NT	360.47	4.177
MM		Dies and Tools				
LE	6	Coke 9200	92 00	17.46 NT	80.32	.932
ZF	6	Contingent Fund				
		Total Manufacturing Cost			2 165.09	25.088

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT A.—*(Continued)*

LK	Packing Expense								260.77		3.021
	Total Packing Expense										
	Grand Total Cost								6 949.50		80.527

Total 100 Produced 1727.81 Number 10 Hour Turns 14.1 Ave. Production per turn 122.53

LK 1 A Kegs, etc.	20 A	220	69.74	LK 1 B Kegs, etc.	20 A	5	1.07
	B	70	22.19		B	126	26.92
	21A	180	57.07		21 A	290	67.06

THIS MONTH—COST PER UNIT OF PRODUCT

Acce. No.	Products	Weight	Avg. Price Materials	Scrap and Loss	Mnfg. Cost	Packing Cost	Total Cost	Amount
LP 20 A	Ry. Spikes 9/16 inch and over	495 80	2 5200	4242	1 5568	1558	4 6568	
B	Ry. Spikes under 9/16 inch	260 00	2 2300	2185	1 6397	2060	4 2942	
21 A	Pressed Spikes	646 00	2 2300	2104	1 3306	2012	3 9722	
23 A	Cross Arm Braces, black	326 01	2 5200	0900	3293		2 9393	
	Total	1727 81	2 3694	2529	1 2530	1510	4 0263	

YEAR TO DATE INCLUDING THIS MONTH

Acce. No.	Products	Weight	Avg. Price Materials	Scrap and Loss	Mnfg. Cost	Packing Cost	Total Cost	Amount
LP 20 A	Ry. Spikes 9/16 inch and over	5914 36						
B	Ry. Spikes under 9/16 inch	5810 00						
21 A	Pressed Spikes	7973 00						
23 A	Cross Arm Braces, black	6120 96						
	Total	25818 32						

PRACTICE

	CHARGE		PRODUCT		SCRAP		LOSS	
	Lbs.	%	Lbs.	%	Lbs.	%	Lbs.	%
Spikes	1596.33	100.00	1401.80	87.81	154.62	9.68	39.91	2.50
Cross Arm Braces	339.04	100.00	326.01	96.16	11.33	3.34	1.70	.50
Total	1935.37		1727.81	89.28	165.95	8.57	41.61	2.15

COST SHEET FOR PRESSED SPIKE DEPARTMENT 192

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT B

DISTRIBUTION OF MANUFACTURING COST

	PRODUCTION		Distribution Basis	Amount	49580 Ry. Spk. over 9/16 LP 20 A	26000 Ry. Spk. under 9/16 LP 20 B	64600 Pressed Spikes Black LP 21 A	32601 X Arm Braces Black LP 23 A
	Direct Items (Charging, Heating & Frg.)							
LP 20 A	Ry. Spikes over 9/16	402 A	20 A					
			B					
21 A	Press. Spikes (Black)		21 A					
	(Grinding and Pointing)							
20 A		402 B	22 A					
B	Ry. Spk. under 9/16 inch		B					
21 A			C					
23 A	X Arm Braces (Black)							
	(Shearing, Punching & Bundling)	402 D						
20 A&B	(Tumbling Spikes)							
21 A		403 E						
	Total Direct Labor			345.94	121.39	68.46	132.11	23.98
	L E Coal & Coke			440.79	155.86	81.77	203.16	
LM 2	(Dies & Tools) Pressed Spikes			59.43			59.43	
LM 2	(Dies & Tools) Railway Spikes			102.03	66.90	35.13		
	Total Direct Items			948.19	344.15	185.36	394.70	23.98
	Total Distributed			1216.90	427.69	240.97	464.84	83.40
	Total Manufacturing Cost			2165.09	771.84	426.33	859.54	107.38
LK	(Kegs, Boxes & Packing Supplies)			260.77	77.24	53.56	129.97	
	Total conversion this month			2425.86	849.06	479.89	989.51	107.38

MATERIALS USED, SCRAP AND PRACTICE

Acct.	MATERIALS USED Description	Price	Value	Quantity	MATERIALS USED DISTRIBUTED TO PRODUCTS Ry. Spk. over 9/16 LP 20 A	Ry. Spk. under 9/16 LP 20 B	Pressed Spikes Black LP 21 A	X Arm Braces Black LP 23 A
LP 1 A	Steel Bars	2.52	2344.56	93038	59134			33904
LP 2 A	Iron Bars	2.23	2241.13	100499		28919	71580	
	Total Gross Material		4585.69	193537	59134	28919	71580	33904
LC 3 B	Piling Scrap (for use in Box Piles)	7.60 NT	58.75	15462	8076	2196	5190	
LC 10 FF	Light & Heavy Melting Scrap	6.00	3.30	1133				1133
	Total Scrap		62.05	16595	8076	2196	5190	1133
	Total Net Materials			176942	51058	26723	66390	32771
	Total Production			172781	49580	26000	64600	32601

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT C

DISTRIBUTION OF OVERHEAD EXPENSE
SPIKE DEPARTMENT

EXPENSE ACCOUNT	Basis Used for Charging to Costs	DISTRIBUTION BASIS If operation of sufficient magnitude a better basis could be obtained by using
Superintendents, Foremen and Clerks		
A Superintendents and Foremen	% of Direct and Other Producing Labor	No change
B Weighmen and Clerks		
Direct Labor		
A Charging, Heating and Forging Railway Spikes	Actual	No change
B Charging, Heating and Forging Pressed Spikes	Actual	No change
Labor and Material in Repairs		
A Heating Furnaces and Connections	% Direct Labor	Horse Power Hrs.
B Railway Spike Machines (but not Dies or Tools)		Horse Power Hrs.
C Pressed Spike Machines (but not Dies or Tools)		Horse Power Hrs.
D–E Motors, Shafts, Belting, etc.		Horse Power Hrs.
F Tumblers		Actual
G General not otherwise provided for		Net Ton Department Production
H Narrow Gauge Cars and Tote Boxes		Net Ton Department Production
J Scales, including inspection		Net Ton Department Production
K Cross Arm Shear Punch		Net Ton Cross Arm Production
Labor and Materials in Maintenance		
A Buildings, Roofs and Floors	% Direct and Other Producing Labor	No change
B Yards, Fences, Sewers and Gas Mains		No Change
C Narrow Gauge Trucks		Net Ton Department Production
D Fire Protection		No Change
Tools, Lubricants and Supplies		
A Tools	% Direct Labor	No change
B Lubricants		
E Supplies		
Other Producing Labor		
A Materials from stock to machines B Scrap Labor C General not otherwise provided for	Net Ton of Department Production	No change
D Weighing, Packing and Stocking Products	Actual	No change
General Works Expense		
A Salaries A 1 Works Manager, Supts.	% Direct and Other Producing Labor	No change
2 Works Office Clerks		No change
3 Storemen and Assistants		Sales of Stores Supplies
4 Time Office		No change
5 Purchasing Dept.		No change

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT C.—*(Continued)*

B	Printing and Stationery		No change
C	Postage and Inland Revenue		No change
D	Office Furniture and Fixtures (Depreciation)		No change
E	Office Expense		No change
F	Telephone and Telegraph		No change
G	Legal Expenses		No change
H	Rentals		Area
J	Travelling and Entertainment		No change
K	Engineering and Draughting Dept. (Nom. Direcct Charge)		No change
L	Employees Liability Insurance		No change
M	Fire Insurance		Value
N	Premium on Fidelity and Guarantee Bonds		No change
O	Taxes other than water		Value
P	Automobile Expense		No changes
Q	Watchmen and Gatemen		Value
R	Water for use of Employees		No changes
S	General sanitation and Welfare		No change
T	Sundries		No change

DISTRIBUTION OF OVERHEAD EXPENSE
SPIKE DEEPARTMENT

EXPENSE ACCOUNT		Basis used for Charging to Costs	DISTRIBUTION BASIS If operation of sufficient magnitude a better basis could be obtained by using
Steam (Used for Heating)			
A	Operating Labor	Direct and Other Producing Labor	Cubic Feet Heated
B	Labor and Material in Repairs		Cubic Feet Heated
C	Labor and Material in Maintenance		Cubic Feet Heated
D	Tools, Lubricants and Supplies		Cubic Feet Heated
E	Fuel		Cubic Feet Heated
G	Water		Cubic Feet Heated
H	Expense		Cubic Feet Heated
J	Insurance, Boiler		Cubic Feet Heated
K	Steam Purchased		Cubic Feet Heated
L	Steam Sold		Cubic Feet Heated
M	Ashes Sold		Cubic Feet Heated
Water (for Drinking and Washing)			
A	Operating Labor	Direct and Other Producing Labor	No Change
B	Labor and Material in Repairs		No Change
C	Labor and Material in Maintenance		No Change
D	Tools, Lubricants and Supplies		No Change
F	Motive Power		No Change
H	Expense		No Change
K	Water Purchased		No Change

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT C.—*(Continued)*

Electric Power and Light (Principally Power)			
A	Operating Labor	Horse Power Hours	Horse Power Hours for Power and Separate Account for Light and Charged on Area Lighted
B	Labor and Material in Repairs		
C	Labor and Material in Maintenance		
D	Tools and Supplies		
F	Motive Power		
H	Expense		
K	Electric Current Purchased		
L	Electric Current Sold		
Yard Switching			
A	Operating Labor (Locomotives)	Net Ton of Department Production	No Change
B	Labor and Material in Repairs (Locomotives)		No Change
D	Tools, Lubricants and supplies (General)		No Change
E	Fuel		No Change
G	Water		No Change
H	Expense		No Change
K	Switching Charges		No Change
L	Labor and Material in Repairs (Cars)		No Change
M	Tools, Lubricants & Supplies (Car Repair Shop)		No Change
N	Expense		No Change
O	Track Maintenance		No Change
R	Track Scale		
Laboratory Expense		Net Ton of Department Production	No Change
Stable & Cartage Expense			
A	Foremen, Drivers, Stablemen, etc.	Net Ton of Department Production	No Change
B	Labor and Materials in Repairs and Maintenance		No Change
D	Tools, Lubricants and Supplies, Feed, Straw, Medicine, Veterinary, etc.		No Change
E	Fuel		No Change
G	Water		No Change
H	Expense		No Change
J	Depreciation in value of Live Stock		No Change
K	Teaming Charges, Teaming done by others for which bills are rendered		No Change

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT C.—*(Continued)*

EXPENSE ACCOUNT

DISTRIBUTION OF OVERHEAD EXPENSE
SPIKE DEPARTMENT

		Basis used for Charging to Costs	DISTRIBUTION BASIS If operation of sufficient magnitude a better basis could be obtained by using
Shop Expense			
A	Machine, Boiler and Smith's Shops	% Direct Labor	Distribute to Repairs and Maintenance sub accounts on % basis
1	Supt., Foremen and Clerks		Distribute to Repairs and Maintenance sub accounts on % basis
2	General Shop Labor		Distribute to Repairs and Maintenance sub accounts on % basis
3	Repairs		Distribute to Repairs and Maintenance sub accounts on % basis
4	Maintenance		Distribute to Repairs and Maintenance sub accounts on % basis
5	Tools and Supplies		Distribute to Repairs and Maintenance sub accounts on % basis
6	Fuel, Power and Light		Distribute to Repairs and Maintenance sub accounts on % basis
B	Carpenter and Pattern Shops		Distribute to Repairs and Maintenance sub accounts on % basis
1	Supt., Foremen, Clerks and General Shop Labor		Distribute to Repairs and Maintenance sub accounts on % basis
3	Repairs		Distribute to Repairs and Maintenance sub accounts on % basis
4	Maintenance		Distribute to Repairs and Maintenance sub accounts on % basis
5	Tools and Supplies		Distribute to Repairs and Maintenance sub accounts on % basis
6	Fuel, Power and Light		Distribute to Repairs and Maintenance sub accounts on % basis
C	Riggers and Fitters		Distribute to Repairs and Maintenance sub accounts on % basis
1	Supts., Foremen, Clerks and General Shop Labor		Distribute to Repairs and Maintenance sub accounts on % basis
2	Tools and Supplies		Distribute to Repairs and Maintenance sub accounts on % basis
H	Expense		Distribute to Repairs and Maintenance sub accounts on % basis
A	Operating Labor, such as Chief Engineer, etc., which cannot be distributed	% Direct and Other Producing Labor	No Change
B	Labor and Material in Repairs		No Change
C	Labor and Material in Maintenance		No Change
D	Tools and Supplies		No Change
E	Fuel		No Change
F	Electric Light and Power		No Change

Specimen Forms: The figures given are not actual on any of these forms

EXHIBIT C.— *(Continued)*

Fuel	Charge actual used	No Change
Dies and Tools	Net Ton of Department Production	Ratio Basis
Shipping Expense	Net Ton Ratio Basis	No Change
Washers	Ratio 170	
Cross Arm Braces	Ratio 140	
Suspension Bars	Ratio 140	
Spikes	Ratio 100	
Depreciation	% of Sales Value	Group Ratio
Administration and selling	% of Sales Value	Group Ratio

EXHIBIT D

PRESSED SPIKES DEPARTMENT
OVERHEAD FOR JULY

Production—Net Tons	86.4
Horse Power Hours	3004

	Amount	Basis of Distribution	Overhead
Superintendents, Foremen and Clerks	81.24	Direct and Indirect Labor	11.41 %
Packing	73.80	Net Ton of Production	.855
Tumbling	1.60	Net Ton of Production	.019
Direct Labor	345.94		
Total Direct Labor	421.34		
Indirect Labor	290.64	Net Ton of Production	3,368
Total Direct and Indirect Labor	711.98		
Labor and Material in Repairs	144.78	Direct Labor	34.36 %
Labor and Material in Maintenance	44.04	Direct and Indirect Labor	6.18 %
Shop Expense	66.68	Direct Labor	15.82 %
Engineering Expense		Direct and Indirect Labor	
Laboratory Expense		Net Ton of Production	
Tools, Lubricants & Supplies	28.26	Direct Labor	6.71 %
General Works Expense	287.59	Direct and Indirect Labor	40.39 %
Steam	35.02	Direct and Indirect Labor	4.90 %
Water	6.76	Direct and Indirect Labor	.95 %
Electric Light and Power	141.23	Horse Power Hours	.047
Stable and Cartage	15.26	Net Ton of Production	.177
Yard Switching		Net Ton of Production	
Dies and Tools	161.46	Net Ton of Production	1.87

Note: In practice, based on figures for a whole period of say 6 months.

Specimen Forms: The figures given are not actual on any of these forms.

EXHIBIT E

DOMESTIC COST OF SPIKES

Feb. 15/28

Overhead based on year 1928

	A Railway 5/8 x 3½	B Pressed 5/8 x 7	C Pressed ½ x 10
Machine No.	4	3	3
Horse Power	8	10	10
Machine Hours	7.81	5.20	4.32
MATERIAL			
1 Net Ton Steel Spike Rods @ 2.52 + extras (A & B .40, C .20)	58.40	58.40	54.40
Scrap A 5.81% B 7.50% C 8.36%			
Furn. Loss A 2.50% B 2.50% C 2.50%			
A 8.31% B 10.00% C 10.86% (A 4.86, B 5.84, C 5.91)			
Less Value of Scrap @ $11.50 Net Ton (A .67, B .86, C .96)			
Net Loss	4.19	4.98	4.95
Net Material Cost	62.59	63.38	59.35
FUEL			
62% Lump Anthracite @ 15.34 N.T. = 404	3.10	3.10	3.10
38% Stelco Coke @ 17.46 N.T. = 248	2.17	2.17	2.17
LABOR A B C			
Forging 2.40 1.68 1.32 + 15% per 1000 lbs.	5.52	3.87	3.04
Stocking, Scrap Labor and General Labor 3.37 N.T.	3.37	3.37	3.37
OVERHEAD			
Supervision			
Supt., Foremen, Clerks, etc. 11.41% — Direct and Other Producing Labor	1.02	.83	.73
Labor and Material in Repairs 34.36% — Direct Labor	1.90	1.33	1.05
Labor and Material in Maint. 6.18% — Direct and Other Producing Labor	.55	.45	.40
Tools, Lubricants and Supplies 6.71% — Direct Labor	.37	.26	.21
General Works Expense 40.39% — Direct and Other Producing Labor	3.59	2.93	2.59
Steam 4.90% — Direct and Other Prod. (Heating)	.44	.36	.31
Water .95% — Direct and Other Prod. (Drinking)	.09	.07	.06
Electric Light and Power — Horse Power Hours per N.T. A B C			
62.48 52.00 43.20 @ .047 per H.P.H.	2.94	2.45	2.03
Yard Switching — Net Ton of Department Production	.....	.....	.....
Laboratory — Net Ton of Department Production	.....	.....	.....
Stable and Cartage (Departmental) — Net Ton of Department Production	.18	.18	.18
Shop 15.82% — Direct Labor	.87	.61	.49
Engineering % — Direct and Other Prod. Labor	.....	.....	.....
Dies and Tools 1.87 — Net Ton Department Production	1.87	1.87	1.87
Contingent Fund ..... — Net Ton Department Production	.....	.....	.....
Packing Expense — Expense actual	3.88	3.88	3.88
Factory cost N.T.	94.75	91.11	84.82
Shipping Expense — Expense Net Ton Ratio 100	2.04	2.04	2.04
Cartage (Delivery) — Contract Zone Rate N.T.	1.18	1.18	1.18
Shipped Cost N.T.	97.67	94.33	88.04
Shipped Cost 100	4.89	4.72	4.41

Accounting For Highway Expenditure

By J. L. ZOLLER

Assistant Accountant, Department of Public Highways, Ontario.

(Address at a Conference on Road Construction, Toronto).

NEED of proper accounting for road expenditure is as imperative as the need of records in any busines organization, and even more so than in many forms of business since the average expenditures I believe in the case of townships is in the tens of thousands and in the counties in the hundreds of thousands of dollars, with little or no receipts through other sources than taxes. When a commercial business is carried on without an Accounting System this business generally fails in short order. If it be fortunate enough to exist for a short period of time the Income Tax Department will step in and compel them to help themselves by demanding that a set of books be kept in order that they (the Federal Government) may know that they are getting their "pound of flesh." You can, therefore, see the importance of an accounting system when a Federal Department insists that books are necessary and that the business be a success if possible. To assist in the installation and use of proper systems some of the Governments will forward copies of forms approved by them.

It must be borne in mind at the outset that accounting systems will not cause busines expansion, but the statistical comparisons which should be available as a result of its use and the detection of error and waste will promote progress.

The counties and townships are business organizations, the officers are placed in charge to perform their duties in a business-like way. Perhaps some people do not think this is being done, but no organization is free from criticism. However, it is desirable to reduce this criticism to a minimum and it is with a feeling of satisfaction that you can refer to proper records to answer any complaints. The moral obligation of any business men or organization is to be fair and square in all their dealings and with proper

records the severest critic can be shown that your duty is being performed.

In the road policy of the counties or townships the government is your partner, and one of the recognized laws of partnership is that the books and records be open for the inspection of each partner. You see it is taken as a foregone conclusion that books and records will be kept. In this partnership you are the active members and perform the work, the activities of the Department are limited to the engineering and accounting departments who are at your disposal for advice and, of course, the department grant is of vital necessity. Is it not, therefore, reasonable to assume that the partners go over the records, and also endeavor to perfect the system of accounting?

Bookkeeping is a method of keeping systematic records of business transactions, and no greater mistake can be made than to conclude that only merchants, bankers and those engaged in similar lines of activity can make a practical use of bookkeeping. The term "system" may be defined as an orderly arrangement of parts or elements into a complete whole fabric. An accounting system may, therefore, be looked upon as a set of records and related procedures so co-ordinated that the various transactions of a business are shown in proper detail as they occur. The keynote of success in life is efficiency, and this is also true of road building. Those who cannot measure up to the future needs of business will be replaced by those who have taken special care in recording data that will enable them to figure on future work. The days of "Guess So" and "Perhaps" have passed and the day of "I Know" is at hand. The greatest benefit of bookkeeping is that it affords a scale by which to measure the worth of actions. It discloses weak places in methods and replaces doubt by certainty.

It is a long time since the progressive merchants of Babylon recorded their transactions on tablets of clay, but even then they realized the importance of knowing, and a desire to know with accuracy—knowing that they could not depend wholly on memory.

In early days accounting covered only ventures and records were kept of each venture. As business grew through new conquests and discoveries of new opportunities for trade or barter, one venture was merged with another with the result that a continuous record was required, and

was kept, showing not only individual transactions, but the result of the whole regardless of how many ventures were undertaken. In those days, and until comparatively recent times, each individual had his own ideas of the requirements and use of records. But as accounting developed, a system was established and governed by a set of rules which give us many facts about business and also acts as a check against errors in recording. Accounting is now looked upon as a science, and is based upon certain definite and known principles. An accounting system is a means to certain ends, and in establishing a system the end to be served must be borne in mind so that every part of the system is working in smooth order. Accounting systems can be simple or complex according to the requirements of the organization. Accounting is therefore, a complete picture of the work, and the important feature is the guidance and help proper accounting records give your executives in the management of your affairs.

So far I have tried to show the close connection between accounting and business and that county and township work is a business carried on in a business-like manner as before mentioned.

At the beginning of this century it was realized in the United States that it was necessary to have uniform accounting systems for municipalities, and the National Municipal League was formed. The first step in uniform municipal accounting was taken by the city of Newton, Mass., in 1901 and other cities gradually followed. The progress has been rapid since 1909. Ontario has not been lagging so far behind in this respect, as just recently I was looking over the annual report on Highway Improvement for 1909, almost 20 years ago, and in that report I found recommendations and changes of the Act whereby the Government had previously recognized the importance of good roads and were endeavouring to establish business-like organization and management in counties and townships. It also stated that the work should be done with a minimum cost and maximum efficiency. It was also mentioned how the cost should be borne. It was assumed that the accounting systems in each organization could cope with the new order of things and you will readily realize that the work could not be done in an efficient manner unless proper records were kept. Since reading this Report of 1909, I

have gone over the annual reports of the Ontario Good Roads Association, and in every year it has been stressed that business-like methods be adopted. This also meant that better accounting methods be adopted as well, but it is apparent from some of the Reports that counties and townships did not realize the importance of this work, for in 1916 at the Ontario Good Roads Convention, the following resolution was adopted:

"That a uniform system of accounting for highway improvement should be considered by the Department of Public Highways so that information showing comparative cost of highways in the various counties receiving aid will be available."

It will be seen that this association realized then the importance of standard accounting records so that any county or township could get important information for comparison purposes.

The importance of accounting was further realized by the Department when Clause 2 of the Regulations with respect to Highways under the Highway Improvement Act was published in 1920 which states that:

"An approved system of keeping road accounts is to be adopted showing the extent and location of each work of improvement and the cost of labour and materials used. Expenditures for maintenance and repair are to be kept separate and distinct from constructon costs. Time sheets and time books are to be used for the payment of the men. Such reports, returns and statements respecting all details of work, methods and expenditures, are to be supplied to the Department of Public Highways as may from time to time be required. Blank forms for annual returns will be supplied to Superintendents or other officials upon request."

Uniform System Proposed

In 1920 a committee was appointed to propose a uniform system of road accounting for counties and townships and to advise as to suitable forms and works to be used. The following is a portion of this committee's report:

"(2) The forms provided by the Department of Public Highways for annual returns are the same for counties and townships. The forms and books forming the records of the work necessary to the preparation of these returns, should, therefore, be similar for counties and townships.

(3) There is at present a great lack of uniformity in the forms used and the manner in which highway expenditure accounts are kept in the various counties. This was obvious from the samples of forms and books sent in by the counties and which were considered by this committee.

(4) Any plan of forms and books should appeal to all as being practical and necessary to the preparation of the annual returns in such detail as the Department of Public Highways requires, before a county or township will be entitled to receive the subsidies under the provisions of the highway laws of the province.

(5) The regularity of all returns will depend entirely on the system adopted in carrying on the work and the completeness with which the records are maintained throughout the year."

The general conception of bookkeeping is the practice of recording business transactions systematically in account and book form and expressing the results of these transactions in monetary form. Bookkeeping also deals with each transaction individually and collectively insofar as the individual transactions may be classified in groups of like nature. As the leading principle of bookkeeping is classification, the transactions should be so classified that at any time the total results of such transactions or of any particular class thereof may be readily ascertained. That is to say—that at any time during the year you take, say a construction sheet for any of your roads, you should be able to tell in short order the amount spent under the various headings and total over all. The system of accountkeeping should be so devised that the maximum amount of information may be obtained with the minimum amount of clerical labour.

This committee had to solve three questions:

(1) What methods of keeping highway accounts will best reflect the efficiency of an administration?

(2) What standards of economies in operation and management can be created on the basis of highway reports?

(3) What practical methods of preventing loss and waste can be learned from highway books and records?

These questions are also being asked by or are in the minds of intelligent voters.

Some Bookkeeping Methods

Let us now consider some of the bookkeeping methods:

(1) We first have the simple cash received and paid out books, kept by petty tradesmen, whose affairs are of such a primitive nature that they are mostly a matter of memory.

(2) As a business assumes a greater magnitude it outgrows these primitive methods and we find day-books, journals, sales books and ledgers added to the primitive cash-book—this covered single entry bookkeeping.

(3) The third stage marks the introduction of the double entry system of bookkeeping with its nominal, revenue and expense accounts, which provides an internal check on the clerical work.

To fit into the last mentioned method, machines are used to great advantage and some of these machines seem to have almost human intelligence. There are numerous other ideas in keeping accounts, but these need not be discussed. The bookkeeping systems of most municipalities have been up to recent years for the most part primitive in form, belonging generally to the cash book class, and some did not keep vouchers or receipts for payment of money. Very little attempt was made to classify these expenditures so that the information would be of some value to estimate future work.

Some may think that these cash book schedules and reports all that is required, but permit me to point out that it is not a business-like method, insofar as it does not classify expenditure, does not give your executives the desired information, and, as partners in the enterprise, the department requires this information in order that it may intelligently advise.

Budget System

Estimating the yearly financial requirements can easily be done when proper records are kept. You are then able to get the approximate cost of any future work by comparing or referring to like work that has been previously done, taking into consideration, of course, the economic situation.

Perhaps some do not take the same care in the administration of public affairs as they would do in private enterprises. It must be understood, however, that the work you

are doing now is of a permanent nature and the payment of some of the construction as well as the road themselves will be handed over to the future taxpayer, and it is only fair to hand the legacy over in the best possible condition. Financing of some municipalities is a difficult task as in some cases provision must be made for a sinking fund reserve and current needs and unless proper account control is exercised, there will be an equitable average for the years covered by the reserves and the taxpayers in some years will be penalized.

In order that as municipal officials we may have a better perspective of the necessity of accounting, let us not lose sight of the fact that we are also taxpayers, and thus help to contribute the moneys—the expenditure of which we are responsible for.

Municipal corporation accounting is similar to a business corporation. You can realize that the accounting system of a city the size of Toronto will be as intricate as that of a large business organization. The primary function of a business organization is to make profit and pay dividends to its shareholders. The municipal corporation exists for the purpose of doing certain work at cost for the residents of the municipality and the dividends will be the class of work performed. The accounting structure of a municipal corporation must be such that it can easily assimilate reports and figures from various departments. The treasurer is the medium through which all payments pass, and it is not expected that he keep all detailed records, but his records should show the expenditure and revenue of each department, and the department in turn should show the detailed expenditure of the amount they are charged with in the treasurer's books.

Highway Accounting

There are two classes of highway accounting. One is employed by the contractor doing the work and will follow the particular commercial system adopted in his office. This is identical in principle with the system used in any other business.

The supervising Highway Department, that is the road superintendent or county engineer, will keep a set of books for the purpose of furnishing a record of fiscal transactions of his department and the standard system was devised

with this end in view. This is closely related with cost accounting and some may call it by that name.

It is desirable that any highway department know at all times the extent of its financial commitments. If this is not done expenditures may go on and when the final reckoning is made it is found to be well over the appropriation thereby causing criticisms and perhaps undue delay in receiving the grant.

Returning to the report of the committee proposing a standard system of road accounting, the report was made and published in 1921 and the department hoped that the municipalities would adopt the suggestions and purchase the necessary forms and books. This was not done to any great extent, and in 1924 the Minister of Public Highways requested that the report be reviewed and an effort made to have the municipalities adopt the standard system. In 1926 the provincial auditor advised that no payments for subsidy would be made unless the department attached a statement certifying that the books had been audited. It was, therefore, imperative that the standard system be adopted by all taking aid and with this in view the Minister of Public Highways authorized the department to supply free of charge the original set of books and forms.

Standard System of Accounting

The Department of Highways does not think it is exacting in asking that the standard system be adopted. It is really a skeleton system, simple in operation and, in most cases, answers the purpose for which it was intended. This system can be easily added to by any county or township whose work is such that more information is desired.

The division of highway work under road numbers, and where need be, sub-divisions into patrol districts, places the cost in small areas, and if excessive expenditure is being made it can be investigated at once.